

In the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

1 1. (Currently Amended) A method of time scale modification
2 of a digital audio signal comprising the steps of:
3 analyzing an input signal in a set of first equally spaced,
4 overlapping time windows having a first overlap amount S_s ;
5 selecting a base overlap S_s for output synthesis corresponding
6 to a desired time scale modification;
7 calculating a cross-correlation $R[k]$ for index value k between
8 overlapping frames for a range of overlaps between $S_s + k_{\min}$ to
9 $S_s + k_{\max}$ according to

10

$$R[k] = \frac{\sum_{i=0}^{L_k-1} \{y[mS_s + i + k] >> m\} \cdot \{x[mS_s + i] >> m\}}{M_k}$$

11 where: L_k is the overlap length; x[i] is the analysis of the input
12 signal for index value i ; y[i] is a synthesis signal for the index
13 value i ; m is a constant between 10 and 15; and M_k is a measure
14 proportional to overlap length;

15 selecting a value K yielding the greatest cross-correlation
16 value $R[k]$;

17 synthesizing an output signal in a set of second equally
18 spaced, overlapping time windows having a second overlap amount
19 equal to $S_s + K$.

20

21 2. (Original) The method of claim 1, wherein:
22 the measure proportional to the overlap length M_k is $L_k/2$.

1 3. (Original) The method of claim 1, wherein:
2 the shift amount m is 12.

1 4. (Original) The method of claim 1, wherein:
2 said step of calculating the cross-correlation R[k] employs
3 only a center half of the overlap region for k = 0.

1 5. (Currently Amended) A digital audio apparatus comprising:
2 a source of a digital audio signal;
3 a digital signal processor connected to said source of a
4 digital audio signal programmed to perform time scale modification
5 on the digital audio signal by

6 analyzing an input signal in a set of first equally
7 spaced, overlapping time windows having a first overlap amount
8 S_a,

9 selecting a base overlap S_s for output synthesis
10 corresponding to a desired time scale modification,

11 calculating a cross-correlation R[k] for index value k
12 between overlapping frames for a range of overlaps between
13 S_s + k_{min} to S_s + k_{max} according to

14

$$15 \quad R[k] = \frac{\sum_{i=0}^{L_k-1} \{y[mS_s+i+k] >> m\} \cdot \{x[mS_a+i] >> m\}}{M_k}$$

16

17 where: L_k is the overlap length; x[i] is the analysis of the
18 input signal for index value i; y[i] is a synthesis signal for
19 the index value i; m is a constant between 10 and 15; and M_k
20 is a measure proportional to overlap length;

21 selecting a value K yielding the greatest cross-
22 correlation value R[k],

23 synthesizing an output signal in a set of second equally
24 spaced, overlapping time windows having a second overlap
25 amount equal to $S_s + K$; and
26 an output device connected to the digital signal processor for
27 outputting the time scale modified digital audio signal.

1 6. (Original) The digital audio apparatus of claim 5,
2 wherein:
3 the measure proportional to the overlap length M_k is $L_k/2$.

1 7. (Original) The digital audio apparatus of claim 5,
2 wherein:
3 the shift amount m is 12.

1 8. (Original) The digital audio apparatus of claim 5,
2 wherein:
3 said digital signal processor is programmed to calculate the
4 cross-correlation employing only a center half of the overlap
5 region for $k = 0$.